



10/791664

COE

P A T E N T

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re U.S. Letters Patent of: )  
Ifflaender ) Application No.: 10/791,664  
Patent No.: 7,050,473 ) Examiner: T. Nguyen  
Issued: May 23, 2006 ) Art Unit: 2828

For: **PUMPING LIGHT SOURCE FOR LASER-ACTIVE MEDIA**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450  
**ATTENTION: Certificate  
of Correction Branch**

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 **ATTENTION: Certificate of Correction Branch** on June 12, 2006.

By: Carol Prentice  
CAROL PRENTICE

**REQUEST FOR CERTIFICATE OF CORRECTION  
PURSUANT TO 37 C.F.R. §1.322**

Dear Sir:

Transmitted herewith is a Certificate of Correction for U.S. Patent No. 7,050,473 which issued May 23, 2006. Upon reviewing the patent, the patentee noted a minor typographical error in claim 24. Specifically, the word "hare" before the word "having" should be deleted.

A Certificate of Correction is enclosed, and reads as follows:

Column 12, line 34

**Delete the word "hare" before the word "having"**

Enclosed is a copy of Examiner's Amendment attached to the Notice of Allowance dated December 20, 2005 evidencing the requested correction. Claim 44 in the Examiner's Amendment

Certificate  
JUN 19 2006  
of Correction

JUN 19 2006

**Patent No.: 7,050,473**  
**Page 2**

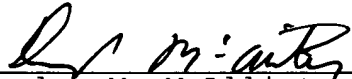
corresponds to claim 24 in the patent.

Since the error for which a Certificate of Correction is sought was the result of Patent and Trademark Office mistake, no fee is due (35 U.S.C. §254). The issuance of the enclosed Certificate of Correction is therefore respectfully requested.

Attached hereto, in duplicate, is Form PTO-1050, with at least one copy being suitable for printing.

Please send the Certificate to Patentee's undersigned representative.

Respectfully submitted,

  
\_\_\_\_\_  
Douglas M. McAllister  
Attorney for Applicant(s)  
Registration No. 37,886  
Lipsitz & McAllister, LLC  
755 Main Street, Bldg. 8  
Monroe, CT 06468  
(203) 459-0200

**ATTORNEY DOCKET NO.: HOE-686.1**  
**Date: June 12, 2006**

2006

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**EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below, to the amended claims 1, 4, 5 should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview on December 1, 2005 with Mr. Barry Lipsitz (Attorney for Applicant, Reg. No. 28637).

**Claim 1-28: (Canceled)**

**Claim 29:**

29. (Currently Amended) Pumping light source for laser-active media comprising:

an outer member enclosing a gas discharge medium, said outer member being optically transparent,

a first electrode acting as a cathode and having a first electrode end located within the outer member, the first electrode end being essentially cooled by thermal radiation,

a second electrode acting as an anode and having a second electrode end located within the outer member, ~~and~~

said outer member having a gas discharge section extending between the electrode ends facing one another, and

said pumping light source being operated with a gas discharge having a predominantly diffuse arc attachment at the first electrode proceeding from an areally extended surface area located at the first electrode end, said gas discharge generating pumping light exiting through said gas discharge section,

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wherein the surface area has an extension greater than two thirds of an average cross-sectional surface area of the volume area at the first electrode end.

**Claim 34: (Canceled)**

**Claim 36:**

36. (Currently Amended) ~~Pumping light source as defined in claim 29,~~ Pumping light source for laser-active media comprising:

an outer member enclosing a gas discharge medium, said outer member being optically transparent,

a first electrode acting as a cathode and having a first electrode end located within the outer member, the first electrode end being essentially cooled by thermal radiation,

a second electrode acting as an anode and having a second electrode end located within the outer member,

said outer member having a gas discharge section extending between the electrode ends facing one another, and

said pumping light source being operated with a gas discharge having a predominantly diffuse arc attachment at the first electrode proceeding from an areally extended surface area located at the first electrode end, said gas discharge generating pumping light exiting through said gas discharge section,

wherein the extension of the first electrode between an electrode opening of the outer member and the first electrode end relative to the average cross section of the first electrode

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is such that the extension is greater than ten times the average cross section of the first electrode.

**Claim 39:**

39. (Currently Amended) ~~Pumping light source as defined in claim 29,~~ Pumping light source for laser-active media comprising:

an outer member enclosing a gas discharge medium, said outer member being optically transparent,

a first electrode acting as a cathode and having a first electrode end located within the outer member, the first electrode end being essentially cooled by thermal radiation,

a second electrode acting as an anode and having a second electrode end located within the outer member,

said outer member having a gas discharge section extending between the electrode ends facing one another, and

said pumping light source being operated with a gas discharge having a predominantly diffuse arc attachment at the first electrode proceeding from an areally extended surface area located at the first electrode end, said gas discharge generating pumping light exiting through said gas discharge section,

wherein:

material forming the first electrode end is provided with a dope additive leading during operation to a lower electrode operating temperature than in the case of the undoped material, and

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in the first electrode the heat resistance between the first electrode end and the electrode opening is at least 10°C/W.

**Claim 40:**

40. (Currently Amended) ~~Pumping light source as defined in claim 29,~~ Pumping light source for laser-active media comprising:

an outer member enclosing a gas discharge medium, said outer member being optically transparent,

a first electrode acting as a cathode and having a first electrode end located within the outer member, the first electrode end being essentially cooled by thermal radiation,

a second electrode acting as an anode and having a second electrode end located within the outer member,

said outer member having a gas discharge section extending between the electrode ends facing one another, and

said pumping light source being operated with a gas discharge having a predominantly diffuse arc attachment at the first electrode proceeding from an areally extended surface area located at the first electrode end, said gas discharge generating pumping light exiting through said gas discharge section,

wherein:

the electrode operating temperature of the first electrode end is lower than the melting temperature of the material of the electrode end, and

in the first electrode the heat resistance between the first electrode end and the electrode opening is at least 10°C/W.

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**Claim 41:**

41. (Currently Amended) ~~Pumping light source as defined in claim 29,~~ Pumping light source for laser-active media comprising:

an outer member enclosing a gas discharge medium, said outer member being optically transparent,

a first electrode acting as a cathode and having a first electrode end located within the outer member, the first electrode end being essentially cooled by thermal radiation,

a second electrode acting as an anode and having a second electrode end located within the outer member,

said outer member having a gas discharge section extending between the electrode ends facing one another, and

said pumping light source being operated with a gas discharge having a predominantly diffuse arc attachment at the first electrode proceeding from an areally extended surface area located at the first electrode end, said gas discharge generating pumping light exiting through said gas discharge section,

wherein the first electrode end consists of tungsten doped with ~~a~~ with at most 5% by weight of an oxide of a rare earth material with having a work function for electrons smaller than that of pure tungsten.

**Claim 42:**

42. (Currently Amended) ~~Pumping light source as defined in claim 41,~~ wherein Pumping light source for laser-active media comprising:

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an outer member enclosing a gas discharge medium, said outer member being optically transparent,

a first electrode acting as a cathode and having a first electrode end located within the outer member, the first electrode end being essentially cooled by thermal radiation,

a second electrode acting as an anode and having a second electrode end located within the outer member,

said outer member having a gas discharge section extending between the electrode ends facing one another,

said pumping light source being operated with a gas discharge having a predominantly diffuse arc attachment at the first electrode proceeding from an areally extended surface area located at the first electrode end, said gas discharge generating pumping light exiting through said gas discharge section, and

the first electrode end ~~consists~~ consisting of tungsten doped with at least 0.1% by weight of lanthanum.

**Claim 44:**

44. (Currently Amended) ~~Pumping light source as defined in claim 29, wherein~~ Pumping light source for laser-active media comprising:

an outer member enclosing a gas discharge medium, said outer member being optically transparent,

a first electrode acting as a cathode and having a first electrode end located within the outer member, the first electrode end being essentially cooled by thermal radiation,

a second electrode acting as an anode and having a second electrode end located within the outer member,

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said outer member having a gas discharge section extending between the electrode ends facing one another,

said pumping light source being operated with a gas discharge having a predominantly diffuse arc attachment at the first electrode proceeding from an areally extended surface area located at the first electrode end, said gas discharge generating pumping light exiting through said gas discharge section,

the first electrode ~~has having~~ a holding section passing through the electrode opening, said holding section consisting of a material wettable by the material of the outer member, and ~~that~~

an end section supporting the first electrode end ~~adjoins~~ this adjoining said holding section.

## REASON FOR ALLOWANCE

### Allowable Subject Matter

2. The following is an examiner's statement of reasons for allowance, with respect to claims 29, 36, 39, 40, 41, 42, 44 the references of the record fail to teach or suggest:

#### Claim 29:

A pumping light source for laser-active media comprising:  
an optically transparent outer member enclosing a gas discharge medium, having a first cathode electrode end and a second anode electrode end located within the outer member having a gas discharge section extending between the electrode ends facing

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one another, where the gas discharge pumping light exiting through said gas discharge section, where the pumping light source being operated with a gas discharge having a predominantly diffuse arc attachment at the first electrode proceeding from an areally extended surface area located at the first electrode end, and the first electrode end being essentially cooled by thermal radiation, wherein the surface area has an extension greater than two thirds of an average cross-sectional surface area of the volume area at the first electrode end.

**Claim 36:**

wherein the extension of the first electrode between an electrode opening of the outer member and the first electrode end relative to the average cross section of the first electrode is such that the extension is greater than ten times the average cross section of the first electrode.

**Claim 39:**

wherein: material forming the first electrode end is provided with a dope additive leading during operation to a lower electrode operating temperature than in the case of the undoped material, and

in the first electrode the heat resistance between the first electrode end and the electrode opening is at least  $10^{\circ}\text{C/W}$ .

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**Claim 40:**

Wherein: the electrode operating temperature of the first electrode end is lower than the melting temperature of the material of the electrode end, and

in the first electrode the heat resistance between the first electrode end and the electrode opening is at least  $10^{\circ}\text{C/W}$ .

**Claim 41:**

wherein the first electrode end consists of tungsten doped with at most 5% by weight of an oxide of a rare earth material having a work function for electrons smaller than that of pure tungsten.

**Claim 42:**

Wherein the first electrode end consisting of tungsten doped with at least 0.1% by weight of lanthanum.

**Claim 44:**

Wherein the first electrode having a holding section passing through the electrode opening, said holding section consisting of a material wettable by the material of the outer member, and an end section supporting the first electrode end adjoining said holding section.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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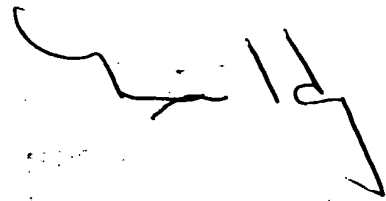
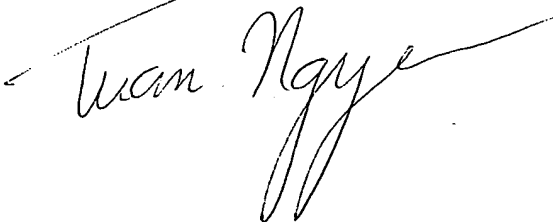
*Communication Information*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan N Nguyen whose telephone number is (571) 272-1948. The examiner can normally be reached on M-F: 7:30 - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harvey Minsun can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tuan N. Nguyen



**UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION**Page 1 of 1

PATENT NO. : 7,050,473

APPLICATION NO.: 10/791,664

ISSUE DATE : May 23, 2006

INVENTOR(S) : Ifflaender

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 12, line 34:

Delete the word "hare" before the word "having"

**MAILING ADDRESS OF SENDER (Please do not use customer number below):**

Lipsitz & McAllister, LLC  
755 Main Street, Building 8  
Monroe, CT 06468

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

*If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.*

JUN 9 2006

## UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

Page 1 of 1

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